

Method for Forming Periodic Electronic Potential Structures in Bulk Solids Using Standing Electromagnetic Waves

Abstract: A method for forming periodic electronic potential structures in doped bulk solids using one or more standing electromagnetic waves is disclosed. Using a single standing electromagnetic wave (47) a monocrystal silicon sample uniformly doped with Li⁷ atoms (21) is converted into a monocrystal silicon sample containing planes of Li⁷ atoms (57). Using two and three standing electromagnetic waves, oriented perpendicular to one another, a monocrystal silicon sample containing rows or wires of Li⁷ atoms (108), and a monocrystal silicon sample containing dots, spots, or clusters of Li⁷ atoms (112) can be formed, respectively.